INFORMED CONSENT TO PARTICIPATE IN RESEARCH

Title of Project: Examination of Sleep, Smoking Cessation, and Cardiovascular Health.

Principal Investigator(s): Freda Patterson, PhD

You are being invited to participate in a research study. This consent form tells you about the study including its purpose, what you will be asked to do if you decide to take part, and the risks and benefits of being in the study. Please read the information below and ask us any questions you may have before you decide whether or not you agree to participate.

WHAT IS THE PURPOSE OF THIS STUDY?

The purpose of this study is to learn more about the relationship between sleep and smoking cessation treatment response. Having a better understanding of this relationship could help us understand if improving sleep is important to helping people quit smoking. With that, two-thirds (about 60 people in total) of eligible study participants will be randomly assigned to complete a study group where sleep advancement counseling in addition to smoking cessation will be provided. The other third (one on three chance) of participants will complete a general health information group in addition to smoking cessation counseling.

You will be one of approximately 90 participants in this study. You are being asked to participate because:

- You are an adult aged 18-65 years.
- You currently smoke 8 or more cigarettes per day.
- You report wanting to quit smoking in the next month, and want to use the quit smoking medication, Chantix for the full 12-week course, to do so.
- You do not have a current diagnosis of psychosis or bi-polar disorder.
- You have no history or current diagnosis of a sleep disorder (with the exception of insomnia) including: sleep apnea, hypersomnia (i.e., trouble staying awake during the day), restless leg syndrome, or narcolepsy.
- You are able to provide written informed consent in English.
- You own a smart phone or have access to a smartphone or tablet in your home

You will be excluded from volunteering if you are:

- A woman who is pregnant, lactating, or likely to become pregnant during the trial and unwilling to use an acceptable form of contraception during the 15-week study and for one week after the end of the study.
- Your current alcohol use is use $\geq$ 14 standard drinks/week for men and $\geq$ 7 standard drinks/week for women.

Participant's Initials _____

- You have a current substance dependence – other than nicotine - (e.g., alcohol, opioids, cocaine, marijuana or stimulants).
- You have a serious or unstable disease within the past 6 months (e.g., cancer, heart disease, seizures).
- You have current diagnosis of psychosis or bipolar disorder.
- You have been diagnosed with severe chronic obstructive pulmonary disease, cardiovascular disease within the last 6 months, or uncontrolled hypertension.
- You take medications for psychosis (e.g., lithium, neuroleptic medications)
- You have a history or current diagnosis of a sleep disorder (with the exception of insomnia and mild obstructive sleep apnea (apnea-hypopnea index (AHI 5-15) [NOTE: Subjects with mild OSA who demonstrate symptoms of fatigue, somnolence, mood disorders or have co-morbidities of hypertension or coronary disease will be referred to positive airway pressure therapy (CPAP) at the end of the study.]).
- You have the inability to provide informed consent or complete any of the study tasks as determined by the investigators.
- Working night or rotating shift and/or use a sleep medication.
- Allergic to the quit-smoking medication, Chantix.
- Current nonspecific suicidal thoughts as defined by the Columbia Suicide Severity Rating Scale.
- Unstable or untreated moderate or severe depression as assessed by the Center for Epidemiology Studies-Depression (CES-D) scale (score of 16 or higher).
- A lifetime history of a suicide attempt.

WHAT WILL YOU BE ASKED TO DO?

As part of this study you will be asked to:

- Participate in this study for approximately 6-months.
- Your participation in this study will involve completing 6-11 in-person visits.
- If you pass the physical eligibility assessment, which includes a urine drug screen, you will be asked to complete an overnight polysomnography assessment (i.e. a sleep study) at the Bay Health Sleep Care Center in Newark, DE. You will stay at the Bay Health Sleep Care Center from approximately 9:00pm until 7am the following morning to complete the assessment, and you will incur no cost for the overnight assessment. If no sleep disorder is detected, you will be deemed eligible to partake in the remainder of the study. If you are found to have a sleep disorder, you will be provided with a report describing your sleep condition and referred to your own physician.
- During the first three weeks of the study, you will be asked to attend 2 individual counseling pre- quit visits that last approximately 40-minutes. During this time, you will receive materials about the program to help prepare you for your quit date.
- You will then be asked to attend a quit day counseling session that takes place during the fourth week of the study, which will last approximately 40-minutes. You will be given information about how to manage withdrawal and how to avoid relapse.

Participant's Initials _____

- Then in weeks seven, eleven, and fifteen, you will be required to attend counseling sessions that support your quitting and help you not to relapse. These sessions last approximately 30 minutes.
- You will be asked to take Chantix (Varenicline) for 12 weeks. At each study session, you will be provided with enough Chantix to last you until the next study session by the study researchers.
- Chantix use will be carefully monitored by study staff throughout the entire study.
- Before each in-person counseling session, you will be asked to complete some paper-and-pencil surveys about your health and health behaviors. In some weeks (weeks 1, 4, and 15) you will also be asked to complete some computer game tasks. These measurement activities may take up to 30-minutes.
- In weeks 1, 15 and 27 you will also be asked to provide a fasting blood sample of approximately 50ml (2.5 tablespoons) of blood and 30ml of urine so that we can track your cardiovascular or heart health and melatonin levels. Since you are required to be fasting for this sample, you may make a separate trip to the clinic to complete this study task either on the morning of the counseling session day (i.e., if the counseling session is 6pm on a Tuesday evening, you may come on the Tuesday morning). In the event that one of the test results is outside the normal range, you will be referred to your primary care physician for follow-up. A copy of your laboratory results is provided as requested.
- Standard dosing of Chantix will be used in weeks 3-15 of the study. For the first three days you take Chantix, you will be prescribed 0.5mg once a day. For days 4-7, you will be prescribed 0.5mg twice a day. From day 8 until the end of treatment, you will be required to take 1mg of Chantix twice daily.
- In weeks 1, 4, 11 and 15 you will be asked to wear a device on your non-dominant wrist that will measure and track your sleep and movement patterns. This device is called an actigraph. You will be asked to wear this device for 7 full days and only remove it when you shower. You will be provided a pre- stamped mailing envelope to return this device after the 7-days are over.
- From week 1 to week 15 you may be asked to wear another wrist device called Fitbit Alta HR. This device will allow us to track some of your health behaviors such as physical activity and sleep. If you are asked to wear the fitbit for the duration of the study you will be also asked to sync your fitbit to your computer or smartphone at least once a week. This will automatically save the data from your fitbit and will help us to see the data on your next visit. At the end of the study you will be able to keep your fitbit.
- In weeks 1 and 15 you will be asked to complete continuous blood pressure monitoring for a 24- hour period. Continuous blood pressure monitoring is when your blood pressure is being measured as you move around, living your normal daily life. It uses a small digital blood pressure machine that is attached to a belt around your body and which is connected to a cuff around your upper arm. It is small enough that you can go about your normal daily life and even sleep with it on. You will be required to return this device to the clinic when the 24-hour monitoring period is over.
- You will be asked to complete tests that measure your heart function in weeks 1, 15 and 27 including a brachial artery flow mediated vasodilation (FMD) test. This is an ultrasound test of an artery in your right lower arm. Brachial artery FMD is a test that involves bouncing sound beams off an artery in your arm so it can be seen on a TV screen and measurements may be made. This measure of heart function may take up to 15 minutes to complete.

Participant's Initials _____

- A second test of your heart function to be completed in weeks 1, 15 and 27 will measure the stiffness in the arteries (Pulse Wave Velocity). Completing this test will involve laying back in a reclining chair and having a sensor applied to you neck, upper arm and upper thigh. The sensors will allow us to test the speed of blood flow around your body. This measure of heart function may take up to 45- minutes and may require a separate visit to the clinic. So, for example, you could come to the clinic any day of the week in study weeks 1, 15 and 27 to complete the heart function tests.
- You will also be provided with the "Quitters Circle" smartphone application, which provides information about tobacco use and support for quitting. By using this app, you can support your quit plan and track your quit progress daily. Use of this app is not required to stay in the study.
- 3 months after the study is complete, you will be asked to complete an in-person 30-minute follow up session where you will complete study measures. As described earlier, you will also be asked to provide approximately a 50ml fasting blood sample (2.5 tablespoons) and 30ml of urine so that we can track your cardiovascular or heart health.

Table 1: Overview of Study Visits

Week #	**Session #**	**Study Visit Information**

Participant's Initials _____

1	Session 1	iii 40-minute in-person counseling session iii Complete fasting blood-draw 2-4 days before or after session. iii Complete measures of cardiovascular function 2-4
2		
3	Session 2	iii 40-minute in-person counseling session
4	Session 3	iii Target Quit Date iii 40-minute in-person counseling session
5-6		
7	Session 4	iii 30-40 minute in-person counseling
8-10		
11	Session 5	iii 30-40 minute in-person counseling session
12-14		
15	Session 6	iii 20-30 minute in-person counseling session. iii Complete fasting blood-draw 2-4 days before or after session. iii Complete measures of
27	Study Follow-up	iii Complete fasting blood-draw iii Complete measures of cardiovascular

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?

Participant's Initials _____

Possible risks of participating in this research study include:

- For the overnight sleep assessment, you may feel uncomfortable with sleeping away from home or experience discomfort associated with sensors and equipment attached to your body while sleeping. You may also experience skin irritation from the adhesive that attaches the sensors to your body. Furthermore, there is a slight chance that you may fall out of bed.

- Experiencing the common side effects associated with taking Chantix (varenicline), which include: nausea, sleep disturbance, constipation, flatulence (excessive gas), and vomiting. Consuming alcohol while taking varenicline (and for up to 6 days after taking the last dose) has been associated with hostility and aggressive behavior.

- Some other side-effects of Chantix are:
  - Changes in behavior, hostility, agitation, depressed mood, and suicide-related events, including thinking about or planning suicide and attempted suicide
  - Possibility of seizures
  - Sensitivity to alcohol that may result in unusual and sometimes aggressive behavior directed to oneself or to others and often accompanied by amnesia (i.e., memory loss)
  - Skin reactions, with swelling of the face, mouth, and neck that can affect your breathing

- To lessen the chances of you experiencing these side effects, we will:
  - Ask that you take the recommended 1mg twice-daily dose of Chantix;
  - Ask you about your side effects at each in-person visit;
  - Recommend that you do not drink excessively (7 or more standard drinks for women and 14 or more standard drinks for men) while you are in the study or for 6 days after the end of the study;
  - Ask that if you, or anyone around you, starts to notice that you are having any of the behavior changes described above, that you stop taking Chantix and call **302-831-4261** to let the study staff know; and,
  - Use alonglistofrulessothatonlypeoplewhoarelesslikelytoexperienceanyoftheseside effects are allowed to participate in the study.

- You may experience some discomfort from the blood draw. For example, you may have some pain, bruising, infection, lightheadedness, fainting, blood clots, and bleeding or other discomforts at the blood drawing site. Sometimes, there is swelling around the area where the needle enters the body.
  - To lessen the chances of you experiencing these discomforts, we will only use fully trained phlebotomists and have medical staff on hand should you not feel well during or after the blood draw.

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- You may experience some discomfort during the heart function tests – the brachial artery flow mediated vasodilation (FMD) test and the Pulse Wave Velocity (PWV) test. The blood pressure cuff used in the FMD test may feel tight for a short period while the PWV test may stop you from moving for about 10 minutes. Both tests may feel generally uncomfortable.

- To minimize discomfort with the sleep assessment, the Bay Area Sleep Care Center will provide high quality service and care to all incoming participants. The center promotes a sense of relaxation in a hotel-like environment.
    - To lessen the chances of your discomfort, only fully trained experts in completing these tests will be used to give these tests to you in ways that are shown to lessen the discomfort. Also, at any time you can tell the technician to stop the test.

- If you were asked to wear a fitbit device:
    - The wrist band is latex free and is similar to that used in many sports watches.
    - The frame on Alta HR is made of surgical-grade stainless steel.
    - The buckle is made of aluminum.
    - While all stainless steel contains traces of nickel and can cause an allergic reaction in someone with nickel sensitivity, the amount of nickel in all Fitbit products meets the European Union's stringent Nickel Directive.
        - To minimize the risk for nickel sensitivity with wearing the device you will be asked about any kind of allergy/sensitivity beforehand.

WHAT IF YOU ARE INJURED DURING YOUR PARTICIPATION IN THE STUDY?

If you experience any side-effects and/or are injured during research procedures, you should let the study personnel know as soon as possible by calling **Dr. Freda Patterson at 302-831-6588**. You should also stop taking the study medication, Chantix. If it is outside normal business hours and you need more immediate help, you should contact your own health care provider and/or go to the emergency room. The cost of this treatment will be your responsibility or that of your third-party payer (for example, your health insurance). By signing this document, you are not waiving any rights that you may have if injury was the result of negligence of the university or its investigators.

WHAT ARE THE POTENTIAL BENEFITS?

- Participants involved in this study will learn evidence-based strategies to successfully quit, and as a result of these strategies, could potentially quit smoking.

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- Quitting smoking or reducing the number of cigarettes smoked will result in many health benefits for the individual, from reduced blood pressure to reduced risk for chronic diseases including cancer and cardiovascular diseases.
- Knowledge gained from this study may add to our understanding of the role sleep has in smoking cessation treatment.
- If you are assigned to the sleep advancement condition (2 out for 3 participants will be assigned to this group) you could learn strategies to improve your sleep habits.

NEW INFORMATION THAT COULD AFFECT YOUR PARTICIPATION:

During the course of this study we may learn new information that could be important to you. This may include information that could cause you to change your mind about participating in the study. We will let you know as soon as possible if any new information becomes available.

HOW WILL CONFIDENTIALITY BE MAINTAINED? WHO MAY KNOW THAT YOU PARTICIPATED IN THIS RESEARCH?

- All of your information will be kept confidential. All group counseling participants will be asked to keep all information shared as part of the group counseling, private and confidential.
- You will be provided with a study ID number, and the study surveys will be identifiable by ID number only. A key linking your name with the ID number will only be accessible to people who work on the study.
- All hard copies of study assessments, consent, and HIPAA forms will be kept in a locked filling cabinet in a lockable room where only the people who work on the study will have access. Paper based information collected as part of the study will be stored for five years after the end of the study, and will be shredded after the five-year storage period is over.
- Electronic databases that contain study data will be password-protected and accessible only by study personnel. The electronic data will be stored indefinitely.
- Approximately 10% of group counseling sessions will be audio-taped. To ensure that your identity is protected, audio recordings of sessions will be destroyed, after they have been heard.
- The research team will make every effort to keep all research records that identify you confidential. The findings of this research may be presented or published. If this happens, no information that gives your name or other details will be shared.
- The confidentiality of your records will be protected to the extent permitted by law. Your research records may be viewed by the University of Delaware Institutional Review Board, which is a committee formally designated to approve, monitor, and review biomedical and behavioral research involving humans. Records relating to this research will be kept for at least three years after the research study has been completed.

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- Organizations that may inspect and copy your information include the IRB, University of Delaware and its affiliates (including the Nurse Managed Primary Care Center) and other representatives of these organizations, the researchers and the Office of Human Research Protections.
- The monitors, auditors, the IRB, and the Food and Drug Administration will be granted direct access to the portion of your medical records that are related to this research study for verification of the research procedures and data. You will need to sign a separate "Authorization to use and disclose your protected health information" to be a part of this research study. We may publish the results of this research. However, we will keep your name and other identifying information confidential.
- A description of this clinical trial will be available on http://www.clinicaltrials.gov/, as required by U.S. Law. This Web site will not include information that can identify you. At most, the Web site will include a summary of the results. You can search this Web site at any time.

USE OF DATA COLLECTED FROM YOU IN FUTURE RESEARCH:

The research data we will be collecting from you during your participation in this study may be useful in other research studies in the future. Your choice about future use of your data will have no impact on your participation in this research study. Do we have your permission to use in future studies data collected from you? Please write your initials next to your preferred choice.

_____ **YES** _____ **NO**

HIPAA AUTHORIZATION

State and federal privacy laws protect your PHI. These laws say that, in most cases, your health care provider can release your PHI for the purpose of conducting research only if you give permission by signing an Authorization.

If you agree to participate in the research study, the research team will need to collect and use your PHI. To allow your health care provider to share your PHI with the research team, your approval is required. Signing this Authorization is completely voluntary. However, if you do not sign this Authorization, then you may not participate in the research study.

Who May Disclose and Who may Use and/or Receive my PHI?

By signing this document, you are hereby permitting the Nurse Managed Primary Care Center at the University of Delaware, the Principal Investigator and other researchers to disclose the PHI described in this

Participant's Initials _____

Authorization to the research team involved in this project; the study sponsor and its employees; the Institutional Review Board (IRB) and other regulatory agencies responsible for overseeing research.

Once your PHI is shared with these persons, you understand that the PHI may no longer be protected by federal or state privacy laws.

What PHI Will Be Disclosed and Used, and for What Purpose?

The following PHI may be disclosed to, collected by, used by and shared with those listed above for the following purpose: to determine your eligibility for the study and to better understand the relationship between sleep and smoking behaviors.
PHI to be collected: Demographic information, Medical history/treatment; Laboratory/diagnostic tests; and psychological testing.

This Authorization will expire at the conclusion of the research study. You may cancel this Authorization at any time before, during, or after your participation in this study by giving a written request with your signature on it to the Principal Investigator at fredap@udel.edu. If you cancel this Authorization, your PHI obtained before that date may still be used for this research study.

I hereby authorize the disclosure and use of my Personal Health Information.

_____ _____

Signature of Patient Date

Printed Name of Patient: _____

WILL THERE BE ANY COSTS TO YOU FOR PARTICIPATING IN THIS RESEARCH?

There are no costs associated with participating in the study. The overnight sleep study at the Bay Health Sleep Care Center is provided free of charge to you by the study. The quit smoking medication – Chantix - is provided free of charge to you by the drug maker, Pfizer. The study counseling sessions are also provided free of charge to you. Medical monitoring of the study will be provided by the Nurse Managed Primary Care Center at the University of Delaware and any co-pays for visits to this clinic will be covered by the study.

WILL YOU RECEIVE ANY COMPENSATION FOR PARTICIPATION?

You will be compensated for completing aspects of this study. If you complete all study sessions and measures, you could be compensated $460. Table 1 below lists out the compensation schedule.

Table 1: Summary of Participant Compensation Schedule

Participant's Initials _____

Session/Visit	Activity	Compensation
H&P **($20)**	• Eligibility Screening	$20
Overnight Polysomnography **($80)**	• Eligibility Screening	$80
Session 1 (wk1) **($100)**	• Ambulatory Blood Pressure Kit Return	$20
	• Actigraph/Motion Logger return	$20
	• Fasting Blood/urine collection	$20
	• Cardiovascular Function Measures	$20
	• Session 1 self-report assessments	$20
Session 2 (wk 3) **($20)**	• Session 2 self-report assessments	$20
Session 3 (wk4) **($40)**	• Actigraph/Motion Logger return	$20
	• Session 3 self-report assessments	$20
Session 4 (wk7) **($20)**	• Session 4 self-report assessments	$20
Session 5 (wk11) **($40)**	• Actigraph/Motion Logger return	$20
	• Session 5 self-report assessments	$20
End of Treatment (wk15) (**$100**)	• Fasting Blood/urine collection	$20
	• Ambulatory Blood Pressure Kit Return	$20
	• Cardiovascular Function Measures	$20
	• Actigraph/Motion Logger return	$20
	• Session 6 self-report assessments	$20
12-week Follow-Up (wk27) **($40)**	• Fasting Blood/urine collection	$20
	• Cardiovascular Function Measures	$20
	Total:	**$460**

Every 20 weeks, we will conduct a $100 raffle only for participants who complete/attend all sessions. Only one person will win the $100. Each round of the raffle, there will be approximately one in three chance of winning. In order to be eligible for the raffle, participants have to complete the 6 counseling sessions (15 weeks of the study). The winner will be notified over the phone and will be compensated at his follow up

Participant's Initials _____

visit.

DO YOU HAVE TO TAKE PART IN THIS STUDY?

Taking part in this research study is entirely voluntary. You do not have to participate in this research. If you choose to take part, you have the right to stop at any time. If you decide not to participate or if you decide to stop taking part in the research at a later date, there will be no penalty or loss of benefits to which you are otherwise entitled. Your decision to stop participation, or not to participate, will not influence current or future relationships with the University of Delaware.

- Voluntary participants who miss three consecutive program sessions will be terminated from the study. After missing two program sessions, participants will be contacted and told if they miss the third session, they will be withdrawn from the study.

- If at any time, you decide to end your participation in this research study, please inform our research team by telling the investigators.

WHO SHOULD YOU CALL IF YOU HAVE QUESTIONS OR CONCERNS?

If you have any questions about this study, please contact the Principal Investigator, Dr. Freda Patterson, at (302) 831-6588 or fredap@udel.edu

If you have any questions or concerns about your rights as a research participant, you may contact the University of Delaware Institutional Review Board at hsrb-research@udel.edu or (302) 831-2137.

Your signature on this form means that: 1) you are at least 18 years old; 2) you have read and understand the information given in this form; 3) you have asked any questions you have about the research and the questions have been answered to your satisfaction; and 4) you accept the terms in the form and volunteer to participate in the study. You will be given a copy of this form to keep.

_____	_____	_____
Printed Name of Participant	Signature of Participant	Date
_____	_____	_____
Person Obtaining Consent (PRINTED NAME)	Person Obtaining Consent (SIGNATURE)	Date

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Participant's Initials _____

<u>OPTIONAL</u> CONSENT TO BE CONTACTED FOR FUTURE STUDIES:

Do we have your permission to contact you regarding participation in future studies? Please write your initials next to your preferred choice.

_____ YES _____ NO

Participant's Initials _____